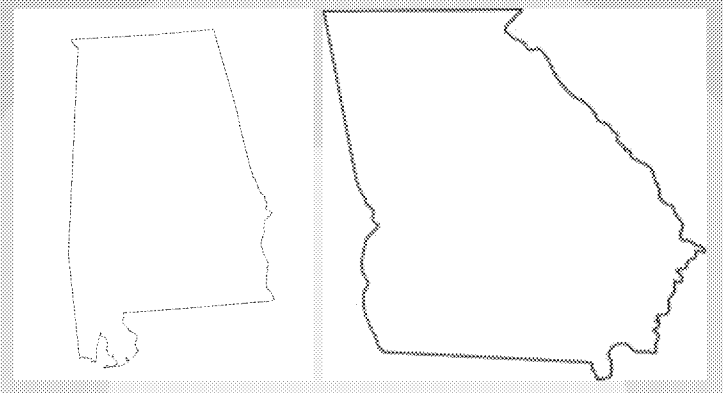


PFAS: GA-AL CONNECTION

OCTOBER 29, 2019

Renea Hall

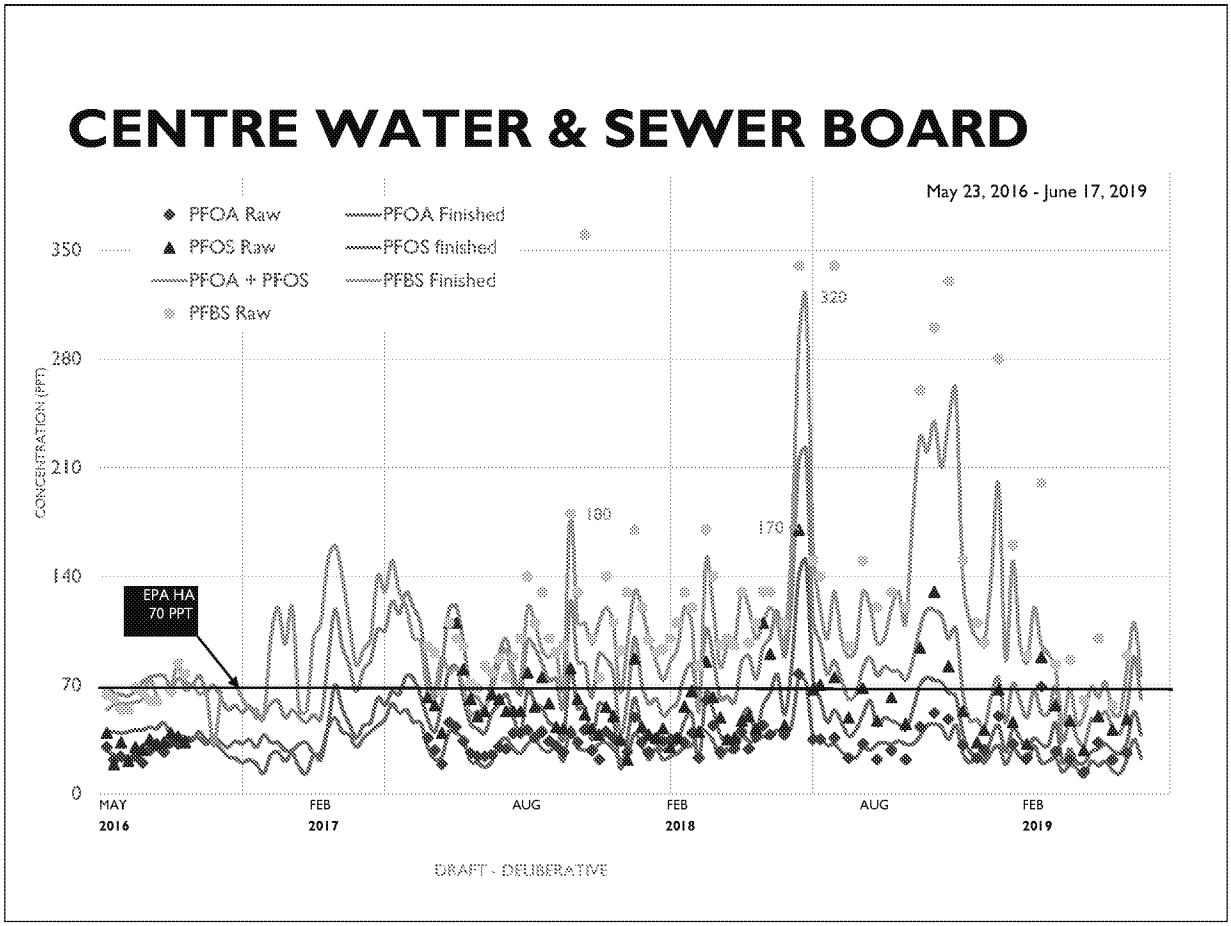
Table 1: Region 4 PFAS – GA-AL Summary Table

Public Water Systems with PFOA/PFOS Sampling Events Above 70 ppt

#	State	PWS Name	Historical PFAS Contaminants (UCMR3 data) [date]	Comments	Current PFAS Contaminants [date]
1	AL	Centre Water and Sewer	PFOA – 40ppt PFOS – 70ppt PFBS -150ppt [2/2015]	Ongoing monitoring. Elevated PFC levels near or above HA. No alternate source.	PFOA – 74ppt PFOS – 150ppt PFBS -320ppt (June 12, 2018)
2	AL	Gadsden Waterworks & Sewer Board	PFOA – 40 ppt PFOS – 60ppt PFBS -150 ppt [7/2013]	Ongoing monitoring. Elevated PFC levels near or above HA. No alternate source. GAC Pilot installation (December 2018)	PFOA – 78ppt PFOS – 150ppt PFBS -330ppt (June 12, 2018)
3	GA	Rome	PFOA – 70ppt PFOS – 120ppt PFBS – 330ppt [11/2015]	Began blending from another intake (Etowah) at a higher ratio to get below HA (July 2016)	At or below HA
4	GA	Chatsworth	PFOA – 24ppt PFOS – 63ppt PFBS – ND	Switched source to get below FHA (June 2016)	At or below HA

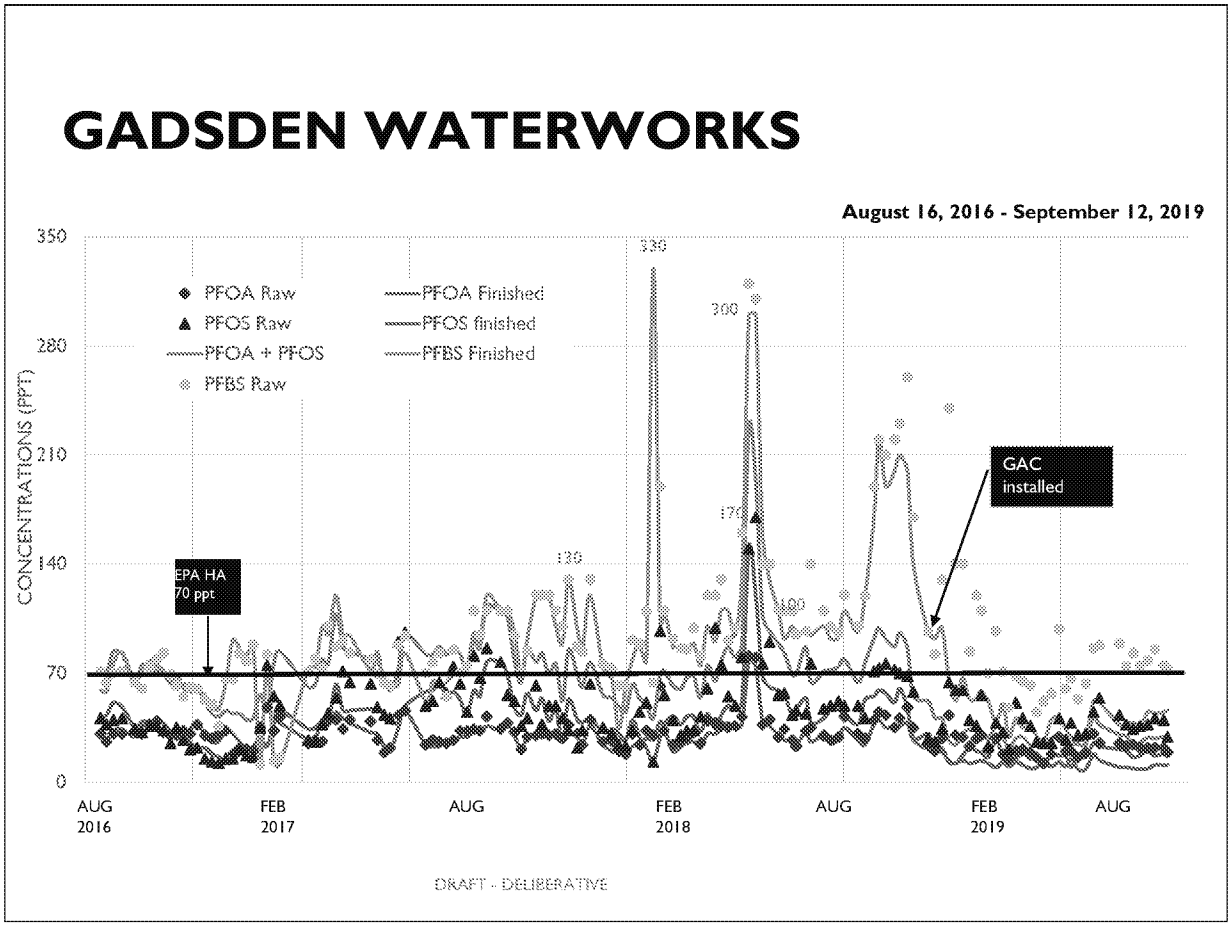
Centre and Gadsden struggled to keep concentrations below the HA.

Chatsworth Calhoun; Dalton Utilities and changed ratios between Carters Lake and Oneill Springs
Rome was able to blend.
Gadsden installed their treatment in December 2018. Centre will install theirs in July 2020; they don't have an alternate source.

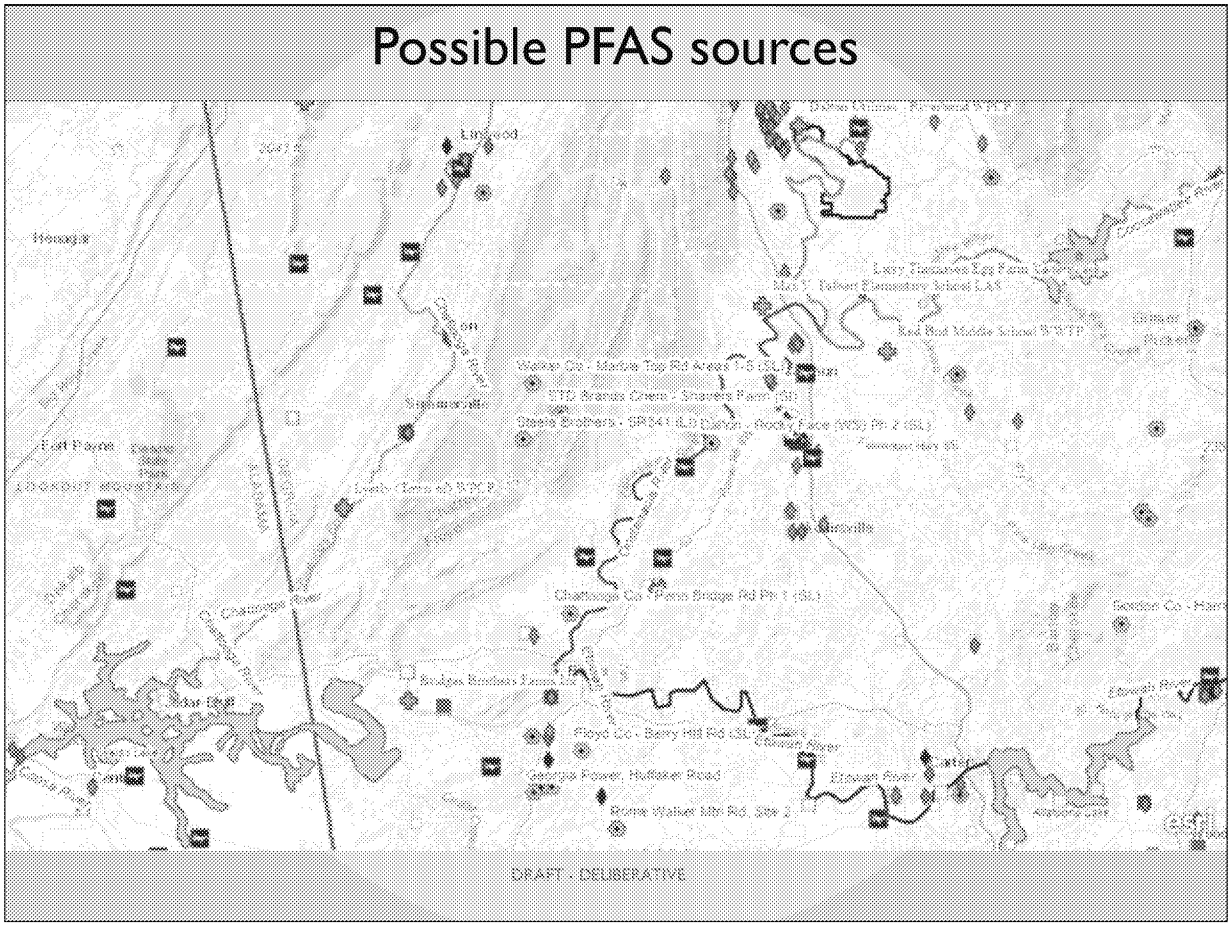


Centre stopped sending lab samples to our office on June 17th. ADEM indicated they had not paid lab fees. Although they were sending the samples voluntarily, my concern is that they won't install treatment until the summer 2020 and there will not be any available data concerning their concentrations.

Centre expects to install GAC treatment in Summer 2020.

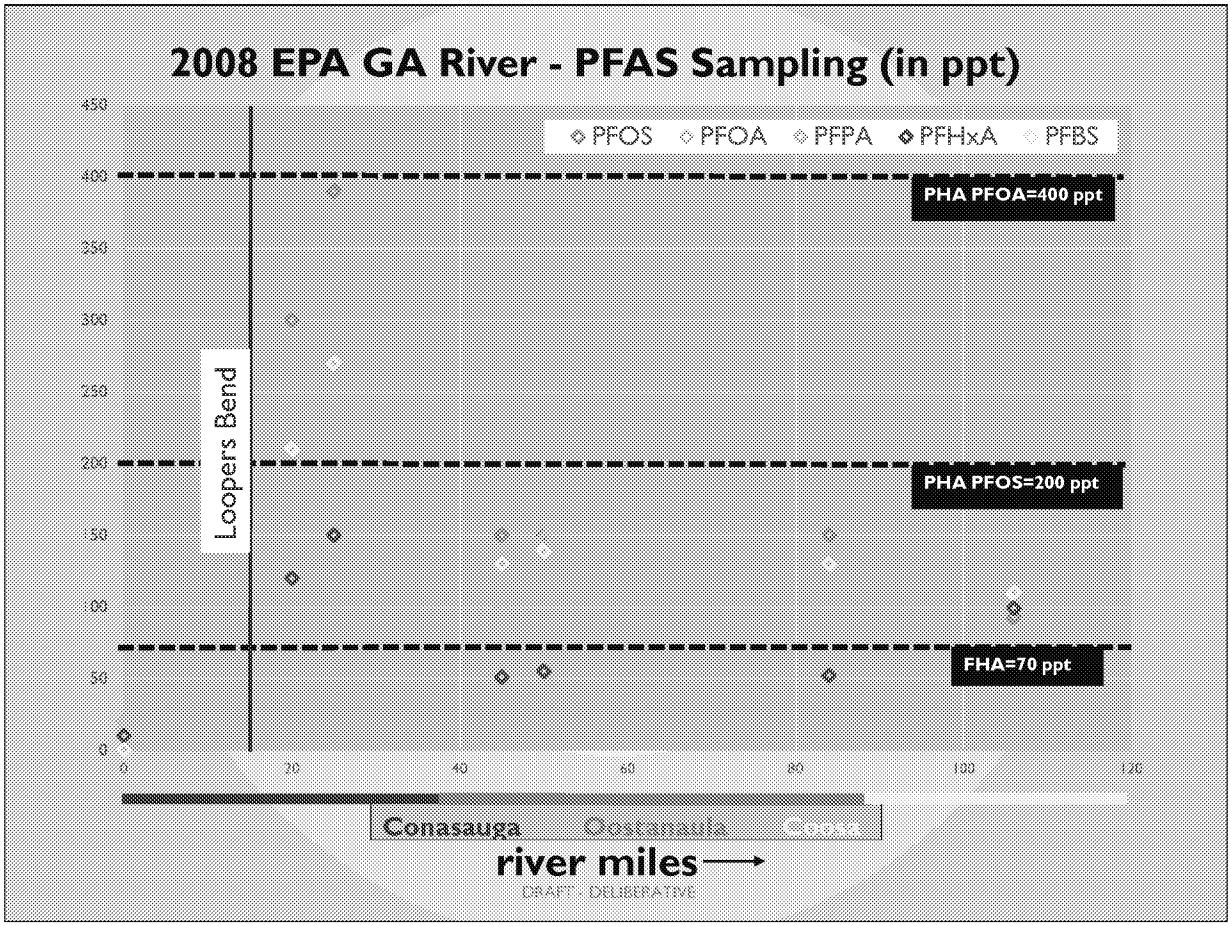


Like Centre, PFBS raw and finished, PFOS raw are the main compounds that are above the Gadsden installed GAC treatment in December 2018.



Loopers Bend is the polygon in the top right. The diamonds all show various PFAS industries (textiles, cookware, plastics). Airports are shown. Biosolids and land application fields are also shown.

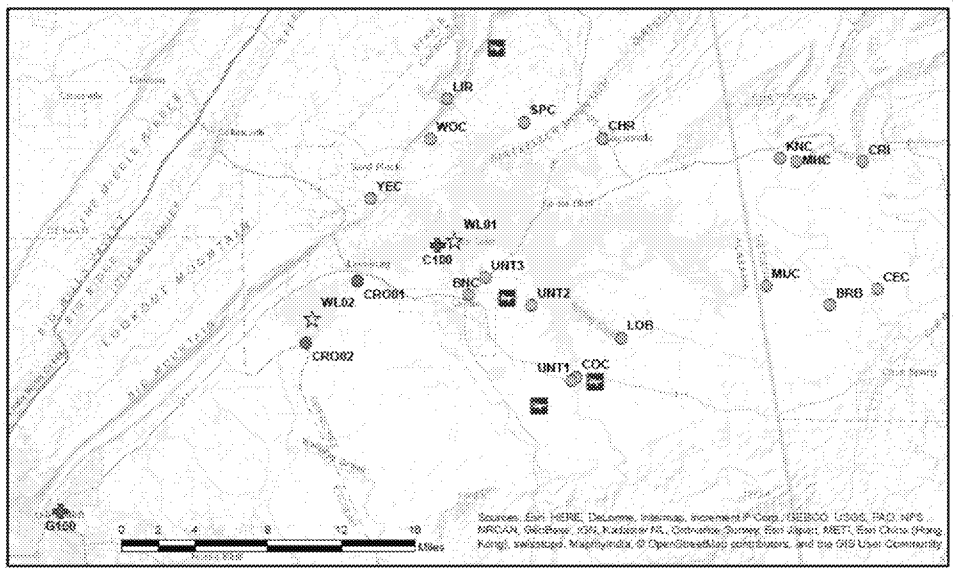
Loopers Bend



Spike in PFAS compounds immediately after Loopers Bend and levels out after downstream 25 river miles.

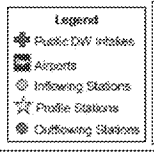
This is an example of the 2008 study, but there were similar studies in 2012 and 2016 (only difference is that PFBS is the lead compound, since PFOS was phased out).

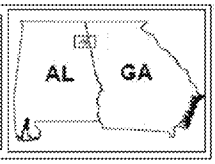
Study: Prioritization of PFAS inputs into Lake Weiss (May 2019)



EPA

PFAS Phase 2:
Prioritization of PFAS Contributions to Weiss Lake
Sampling Locations

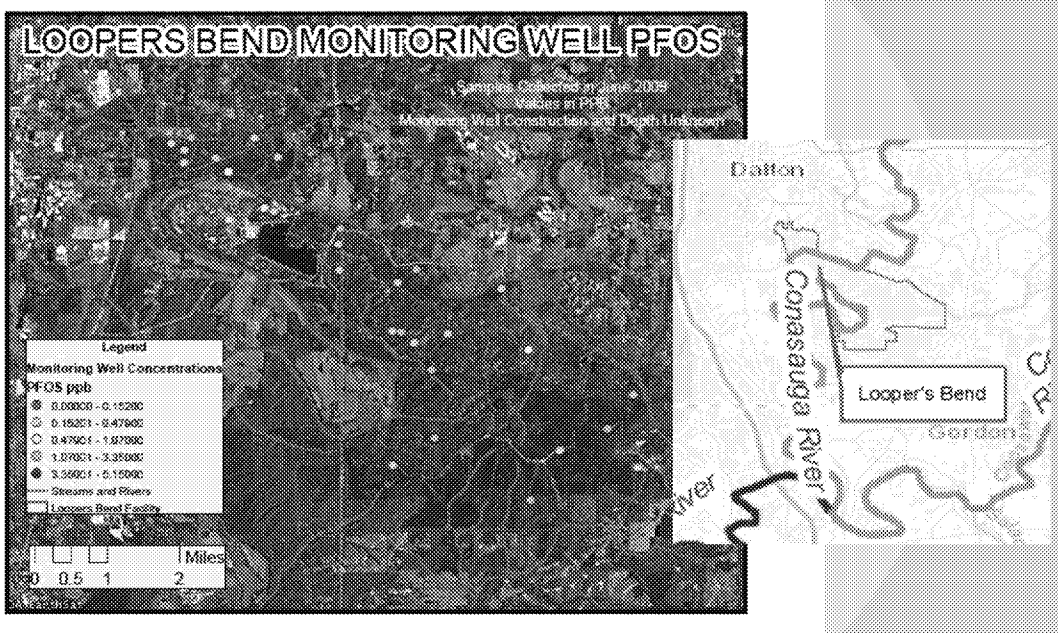




17 incoming tributaries, 11 on the AL side
2 outflowing tributaries
2 vertical profiles at WL01 (0-20' below surface) and WL02 (0-30' below surface)
C100 – Centre DW Intake and G100 – Gadsden DW Intake

Insitu water quality parameters (pH, temp, turbidity, TOC, TSS, etc.)

Loopers Bend

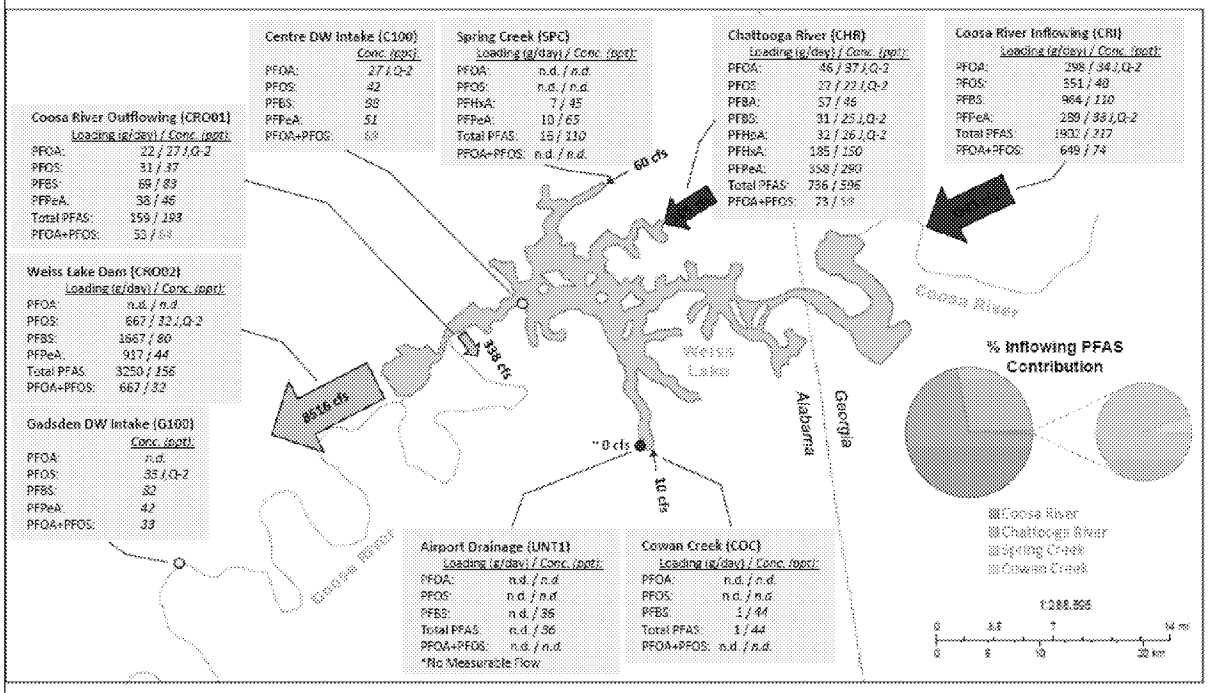


DRAFT - DELIBERATIVE

Loopers Bend is a 10,000 acre Land application site that sprays 20mgd of effluent from their WWTP, which receives wastewater from multiple local carpet industries. The Conasauga River flows around Loopers Bend. After several convergences with downstream waterbodies, it contributes to the Coosa River.

In 2009, the onsite MW at the Loopers Bend LAS show high concentrations of PFOA and PFOS.

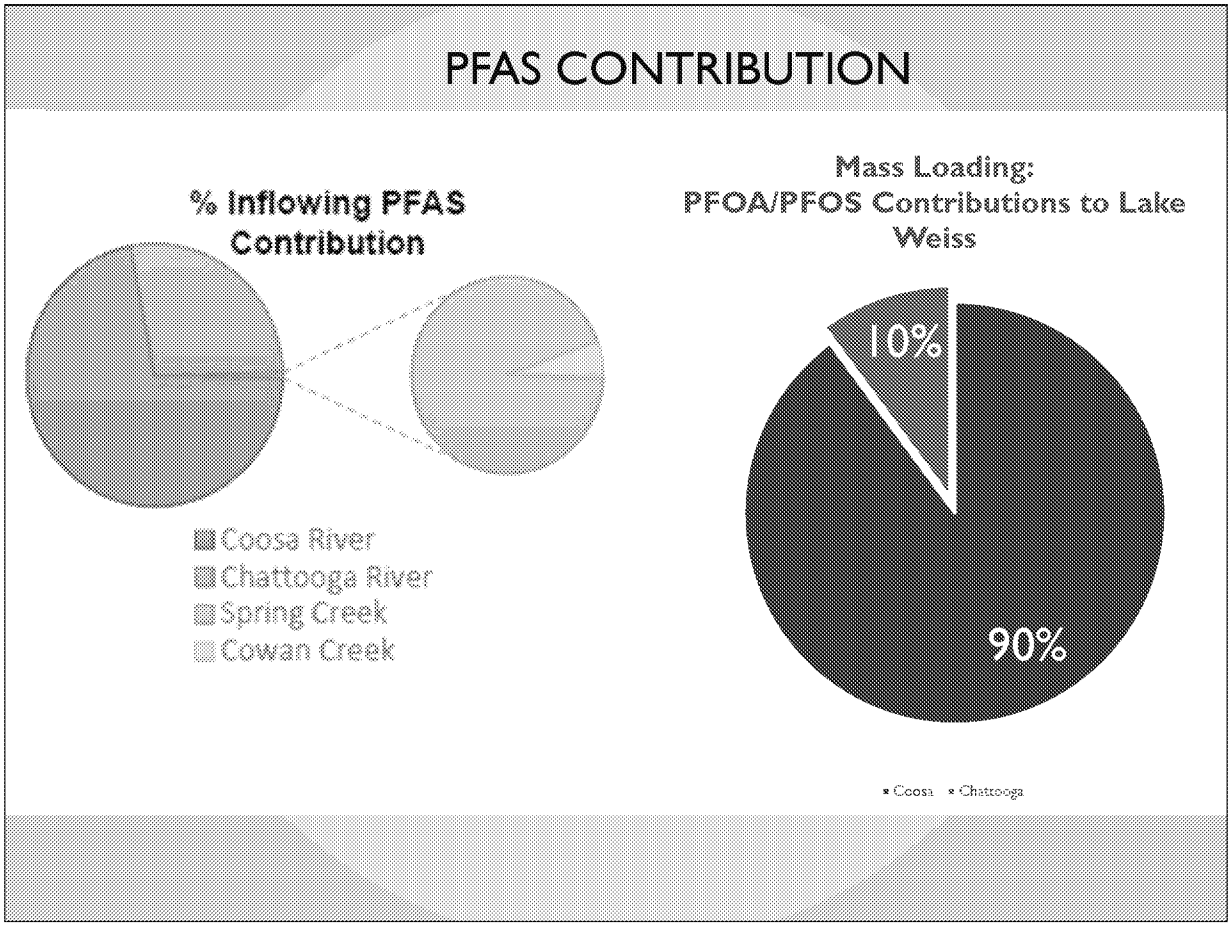
Results: Prioritization of PFAS inputs into Lake Weiss (May 2019)



Mass loading study (under low flow conditions near 7Q10)

Coosa 1902g/day but 217 ppt of total PFAS
Chattooga 736 g/day but 596 ppt of total PFAS; also a more diverse mixture of individual PFAS constituents

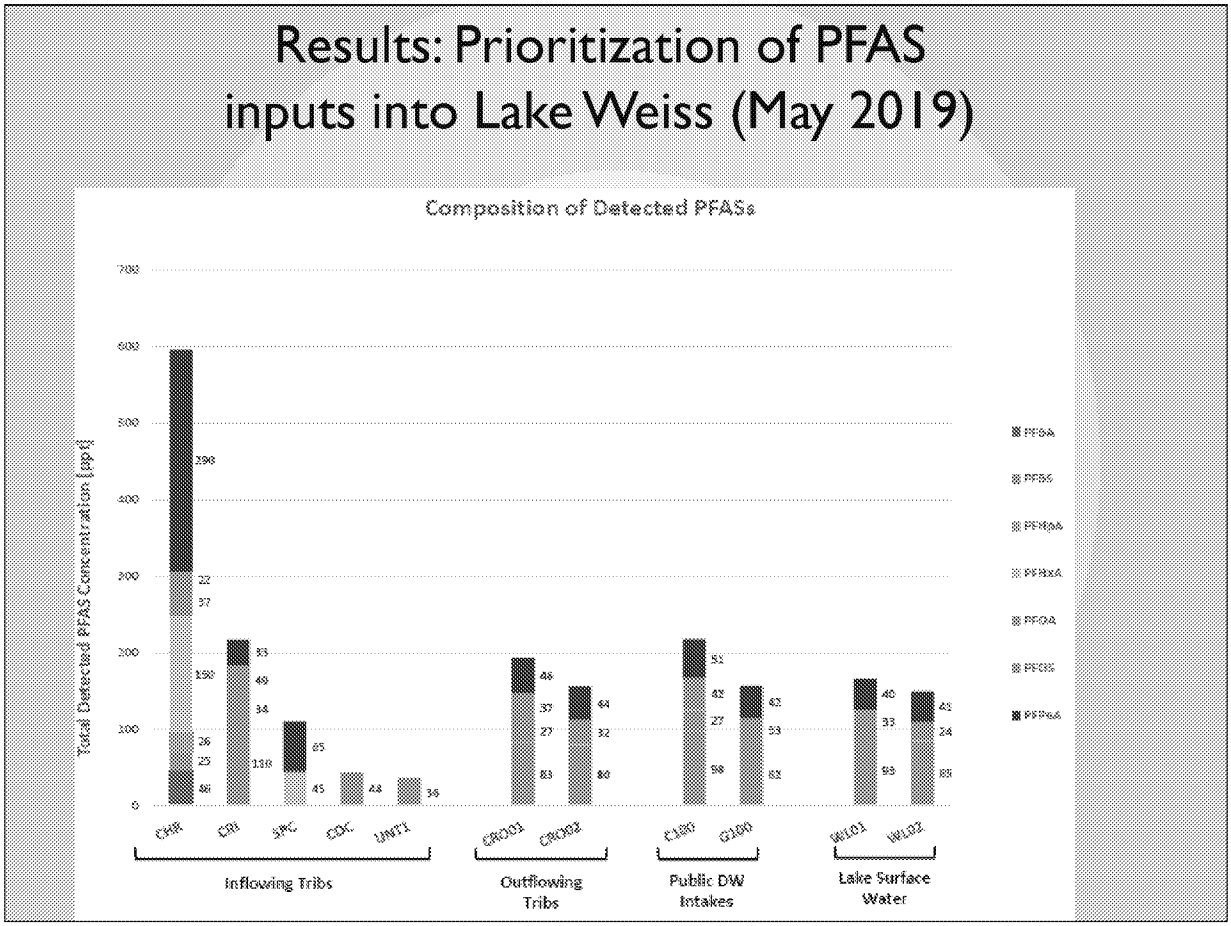
CR002 highest concentrations*



Of the inflowing tributaries, 4 had contributions leading the mass loading on Lake Weiss, but the Coosa shows the majority of total PFAS contribution.

If we look at just the PFOA/PFOS contribution to Lake Weiss, Coosa contributes 90%.

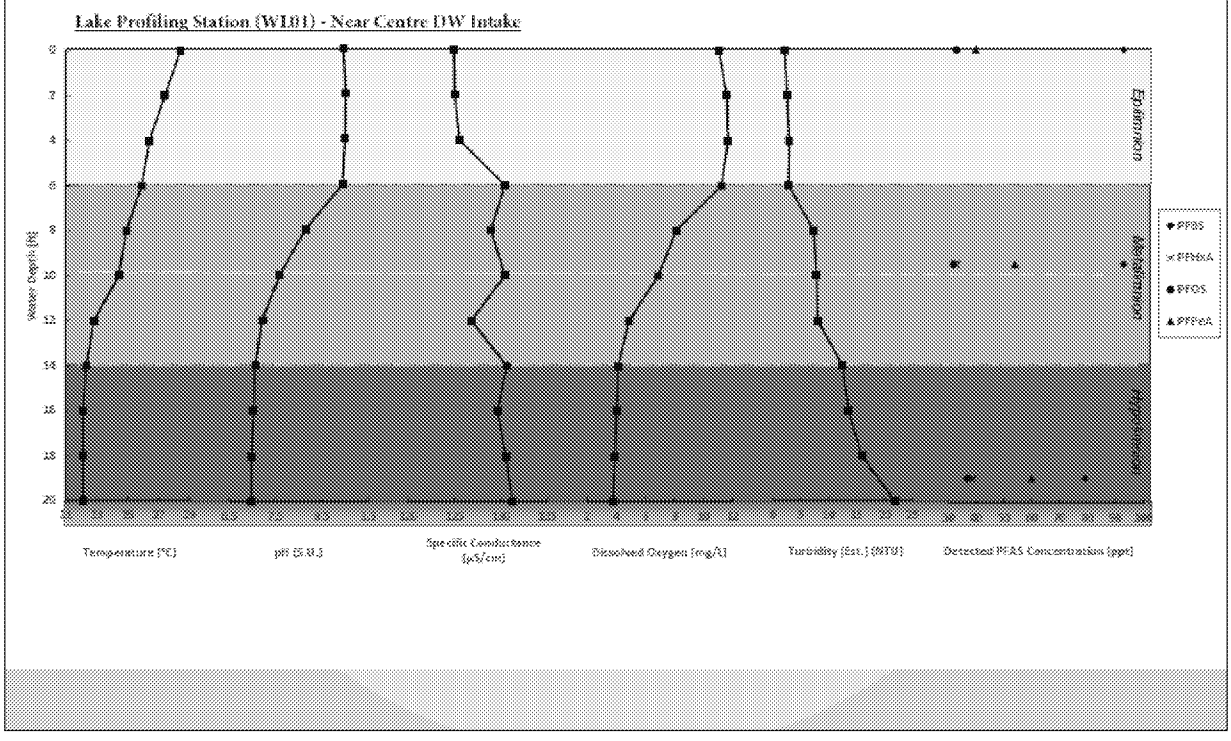
Results: Prioritization of PFAS inputs into Lake Weiss (May 2019)



This shows the PFAS classification among inflowing, outflowing, DW intakes and the 2 vertical profiles.

Diversification of PFAS constituents with PFPeA (PFOA replacement), PFBS (PFOS replacement) present in most samples and higher concentrations that PFOA and PFOS.

Results: Prioritization of PFAS inputs into Lake Weiss (May 2019)

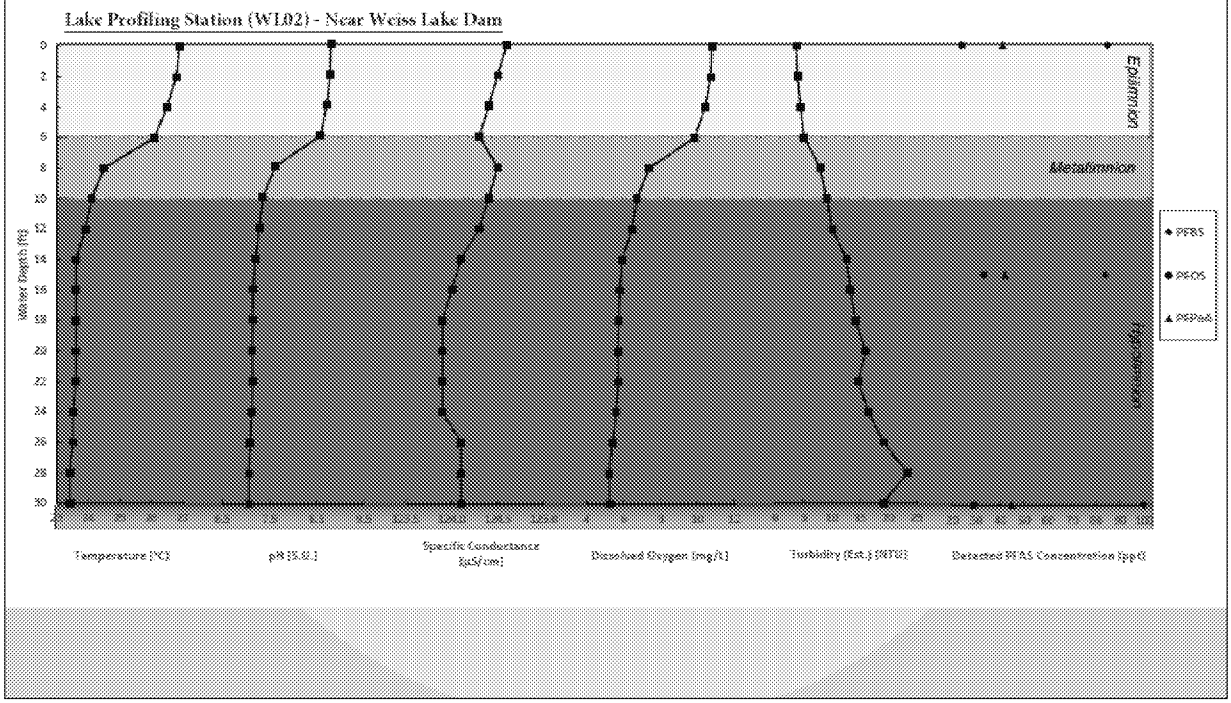


The insitu water quality parameters are at the bottom. The three distinct layers are representative layers of a thermalcline, where there's stratification on the layers based on a sudden change in temperature.

Y-axis: Water depth from surface level to below surface level

Far right portion of the graph and legend: Show that the concentrations of PFBS, PFHxA, PFOS, PFPeA are essentially the same at multiple water depths (0ft below surface to 30 ft below surface).

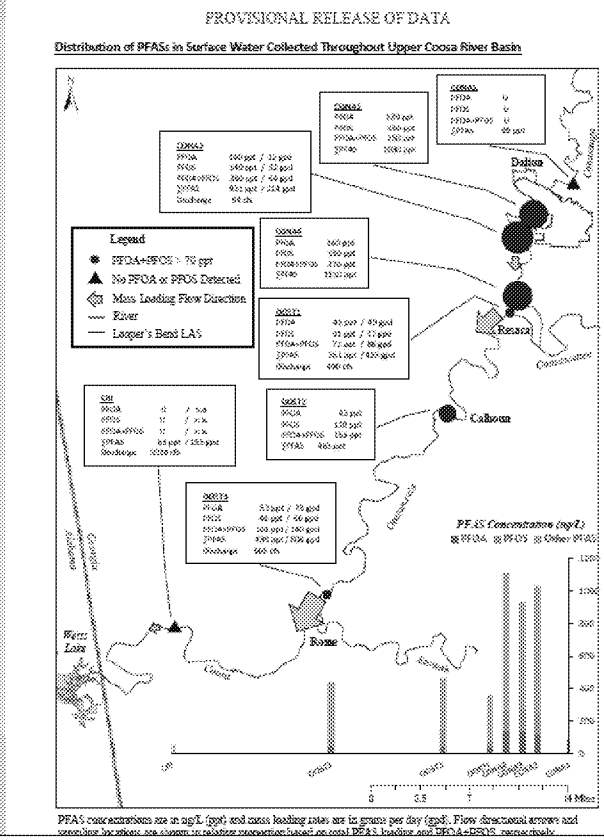
Results: Prioritization of PFAS inputs into Lake Weiss (May 2019)



Same as last slide, but to 30’ below surface and at the station near the dam.

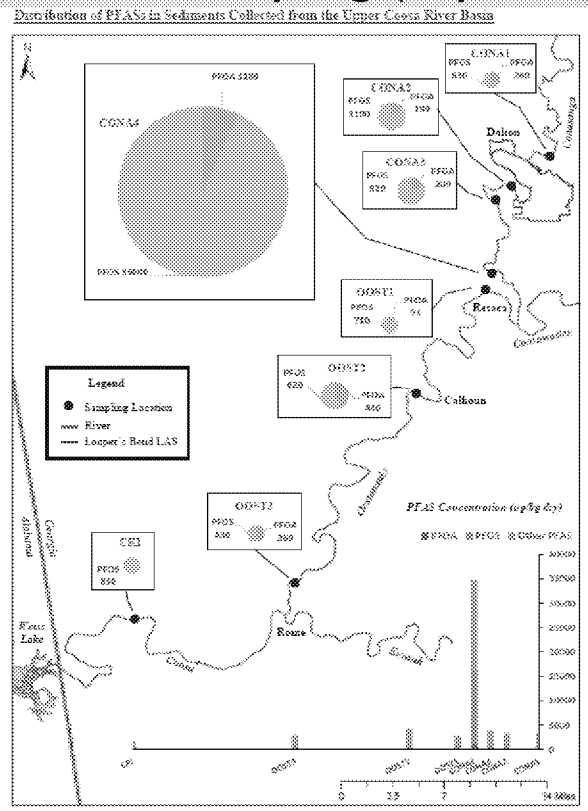
Take away from both vertical profiles is that there’s a strong likelihood of the presence of PFAS compounds in sediments, since the concentrations appear constant in the water column.

Coosa-SW Sampling (September 2019)



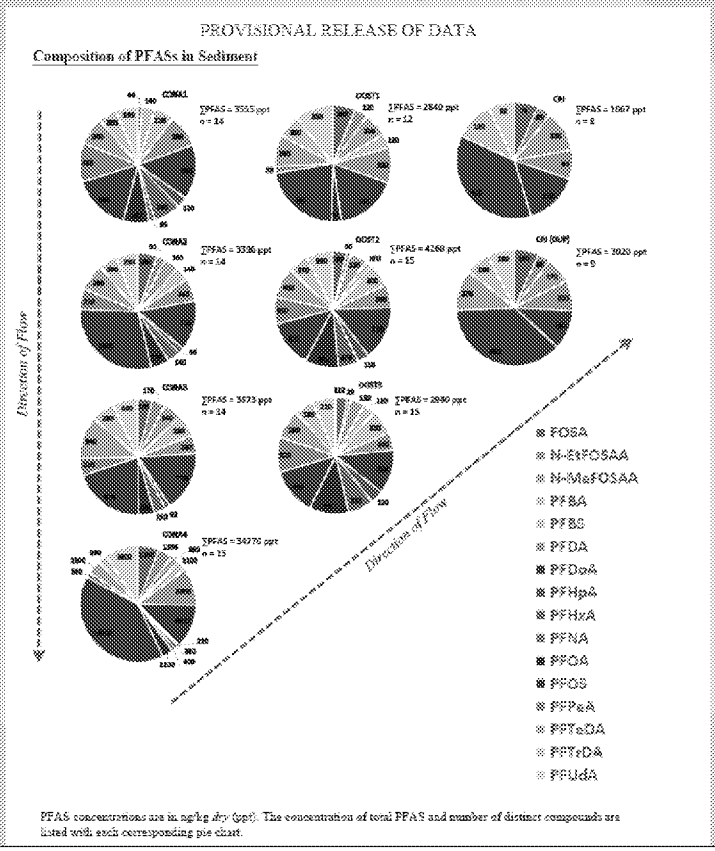
Provisional data for surface water results, but CONA4 had data that extended to/beyond the measurement capacity of the equipment.

Coosa-Sediment Sampling (September 2019)



Provisional data shows PFOS lead compound in sediments.

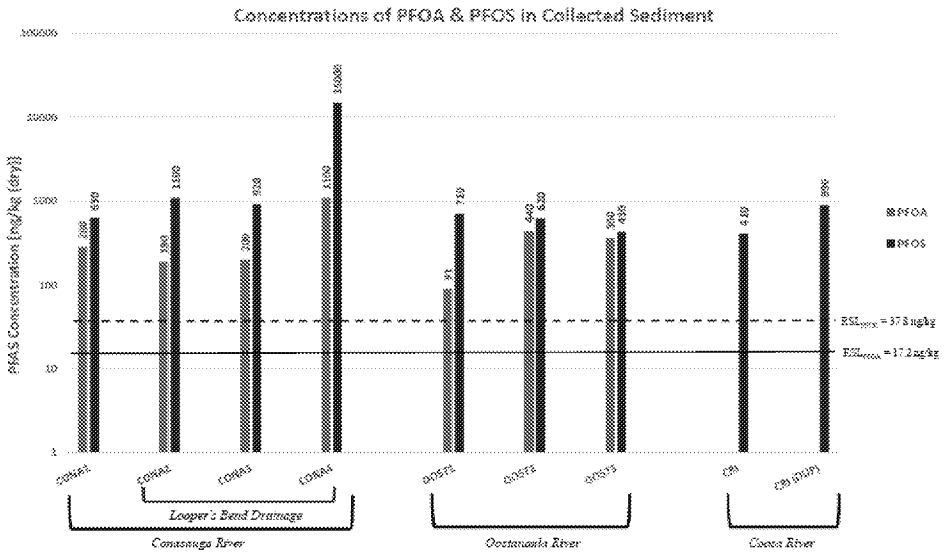
Coosa-Sediment Sampling (September 2019)



Diversification of PFAS constituents

Coosa - Sediment Sampling (September 2019)

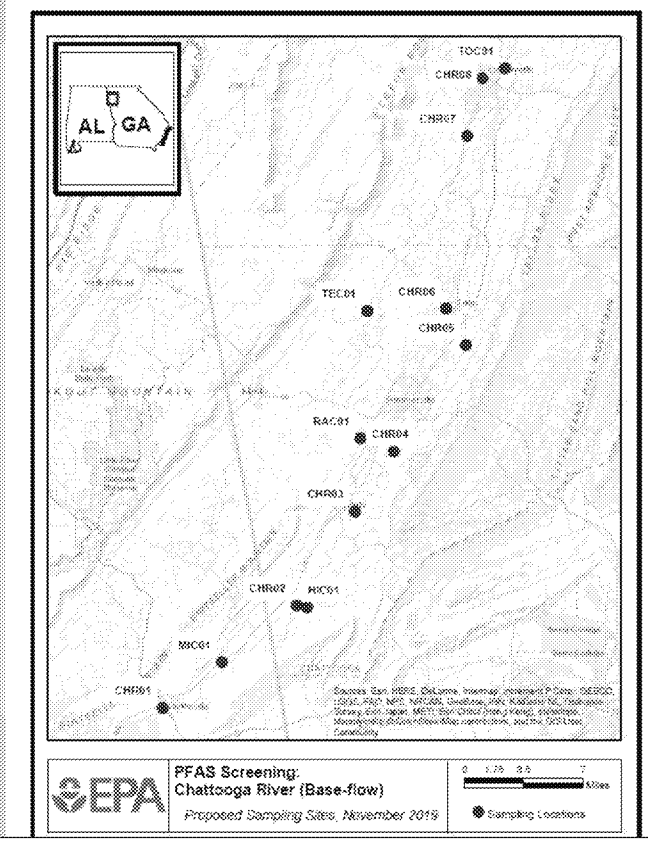
PROVISIONAL RELEASE OF DATA



All PFAS concentrations are in ng/kg *dry* (ppt). The chart is shown in log scale to capture full range of concentrations. Significantly elevated concentrations of PFOS observed at CONA4 downstream of Looper's Bend may be due to the presence of high levels of total organic carbon. No PFOA was detected at or above the minimum reporting limit at CR1. All sites had concentrations above the calculated RSLs for PFOS (37.8 ng/kg) and PFOA (17.2 ng/kg).

RSLs calculated, which we'd like to verify with Superfund

Chattooga- Proposed Sampling (November 2019)



Proposed sites for November 4-8th study of surface water and sediments on the Chattooga.